U.S. Measurement System

NIST National Institute of Standards and Technology

Imaging as a Biomarker: Standards for Change Measurements in Therapy

Breakout Area 2: PET & PET CT:
What can be measured over time?

Day 1: Summary of "Big Picture Roadmapping – The What by When?"
Near, Mid and Long-Term Issues

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Breakout Area 2: PET/CT: What can be measured over time?

Near- and Mid-Term 1-5 Years

1. *State Innovation or Challenge: Imaging response to lung cancer therapy with FDG (Near Term)*
   - ❑ Impact of Success: Delivery on new medications for unmet medical needs. Fewer failures for individual patients. Trickle-down to clinical standards
   - ❑ Technical Barriers: variability due to scanners and algorithms, across-tumor heterogeneity, longitudinal stability, reporting of QC/QA
   - ❑ Key Players: Scanner Mfgs, Pharma, CROs, NIH, NIST, ACRIN, Societies (SNM), Oncology cooperative groups (SWOG, CALGB, ASCO, ASTRO,...)
2. *State Innovation or Challenge: Imaging progression of Alzheimer's (Mid Term)*
   - ❑ Impact of Success: Complete trials with fewer patients and detect smaller changes
   - ❑ Technical Barriers: Patient motion - software registration
   - ❑ Key Players: Scanner Mfgs
3. *State Innovation or Challenge: Stratification of hypoxia levels with novel tracers (Longer term)*
   - ❑ Impact of Success: Help trial recruitment of new therapies, i.e. improve power of trial by appropriate selection, gate-keeping for treatment path selection
   - ❑ Technical Barriers: Inadequate metrics
   - ❑ Key Players: FDA, Pharma, Oncology cooperative groups